Inbreeding Amphidasis betularia.

By Capt. BOWATER, R.A.M.C.T., M.C., F.E.S.

In the course of an experiment, undertaken in 1909 in order to investigate the heredity of melanism in Lepidoptera, *Amphidasis betularia* was one of the species used, and it proved itself capable of withstanding considerable inbreeding if due care be taken.

In many cases pairings were infertile, and those fertile often produced larvæ so weak that they failed to reach maturity, but several families were carried through each year, and the strain was kept going till August, 1914, and then my wife, although quite untrained in entomology, took over the larvæ, and with some aid from my sister, carried them through, and cared for a further generation in 1915, which successfully produced imagines in 1916. The 7th generation.

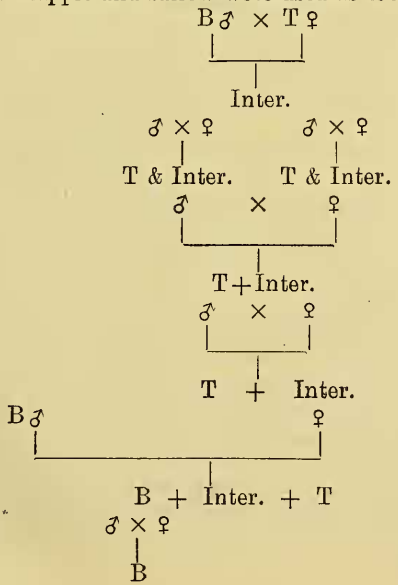
I record this now as I fail to find in the literature a record of success with more than three generations of this species.

The original parents were Black × Type, their offspring all intermediate. Four pairings amongst these produced four families consisting of type and intermediate specimens. A type ♂ from one and an intermediate ♀ from another were paired and produced a family (the only one in the year) of 39 specimens (a good example of clean Mendelian segregation), 19 being strictly type, and 20 intermediate, and all the 20 are exactly the same style.

A type ♂ and an intermediate ♀ were paired, and in 1914 five moths emerged, two type and three intermediate. The darkest of the latter, a ♀, paired with a wild Bexley black ♂, and deposited about 400 ova, from which 250 pupæ were raised, and in 1915 107 black, 60 intermediate and 59 type moths emerged.

Two of the black were paired, and their family of twelve, all black, appeared last year.

Seven hundred and thirty-one specimens were reared in the whole experiment. Apple and sallow were used as food-plants.



March 15th, 1917.

I am much indebted to my friend Mr. Edwards, of Birmingham, for invaluable help, for he took care of the pupæ, and killed and set the imagines for me, in spite of the very numerous calls on his time.

I hope to record further details at a future date, as other small families of the same strain were reared during the six years, and all tend to prove that Mendelian laws of heredity prevail in *A. betularia*, although the occurrence of intermediate forms and the special liability to disease of this species when in captivity, have prevented the accumulation of much evidence to support this.

Prolonged life in a headless ant.

By T. A. CHAPMAN, M.D., F.E.S.

October 15th, 1917.—Mr. Donisthorpe took a colony of *Myrmica scabrinodis* at Weybridge.

October 21st.—Mr. Donisthorpe says that all the ants of this colony have entered the new nest. On one or other of these dates or on some intermediate one, a certain ant became decapitated.

October 25th.—The above nest passed into my possession for the benefit of the larva of *Lycaena alcon*, and Mr. Donisthorpe pointed out to me the headless worker.

November 2nd.—The headless ant is still alive.

November 3rd.—It has moved to the next compartment, no doubt moved by ants; as it does not seem to move voluntarily, but sits up and moves a little when touched by passing ants.

November 4th.—Moved to another compartment, no doubt carried.

November 5th.—As well as usual.

November 10th.—Seen to-day, quite lively, is away from other ants, moves when touched.

November 13th.—Still living.

November 14th.—Found in midden, lively, removed it from midden.

November 15th.—Is being held by another ant, seemed as usual when released.

November 18th.—Lively.

November 19th.—Carried or held by an ant, kicks in a lively manner.

November 24th.—Unseen for two days. It is to-day amongst the ants in brood nest, to which it must have been carried by ants, it is seen when they scattered, seems alive and well.

November 26th.—In centre of a compartment, well.

November 28th.—In middle of a compartment, seems strong, but doesn't move unless touched.

November 29th.—Now alone in space beyond the one in which it was yesterday, obviously carried by ants. A few days ago it was noticed to be without the second left leg. It was assumed that this had occurred in the original accident in which the head was lost, but had been overlooked, though it was looked at so often that it seemed an explanation hard to accept. To-day all three left legs are missing. Two of these, therefore, and almost certainly the first also, must have been removed by the ants, either intentionally or in struggles as to who should carry it off. It sits up on the three right legs and gets on them again when shoved over.